



Town of Amherst

Department of Public Works

2002 Water Quality Report

Dear Customer:

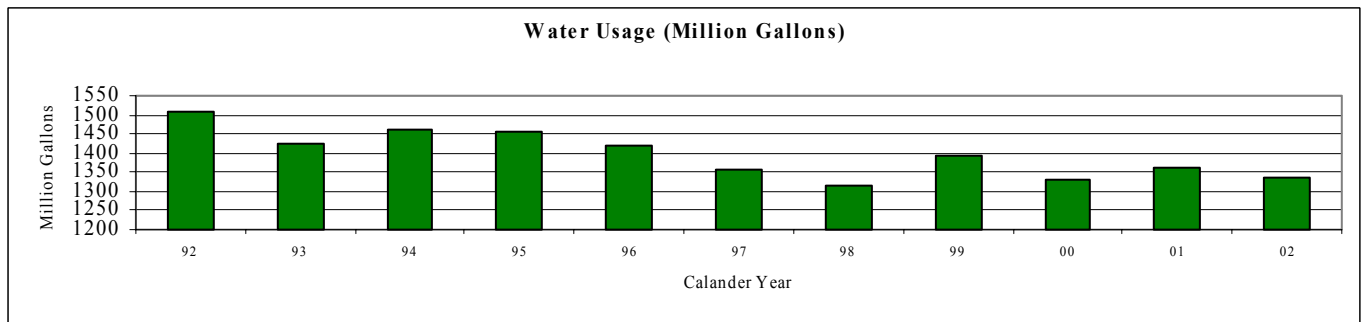
In the year 2002, drinking water supplied by the Town of Amherst met all U.S. Environmental Protection Agency (EPA) and state drinking water health standards. This annual report will detail where your water comes from, what it contains, and the risks our water testing and treatment are designed to prevent. This is the fifth year this report has been disseminated. Although much of the information in this report is required, we will try to supplement it with information of interest to the public.

1. Water Sources

The Town currently has seven sources that contribute to meeting the water demand: Atkins Reservoir, the Pelham Reservoir System, the South Amherst Wells (#1 & #2), The Brown Well (#3), the Lawrence Swamp Well (#4) and the Bay Road Well (#5). Both surface water supplies, Atkins and Pelham, and Wells 1, 2 & 3 are used year round on a daily basis to satisfy the required demands. These five sources supply approximately 90% of the total water produced. Wells #4 and #5 operate during high demand periods and summer months when the reservoirs are low. These two wells produce a combined 10% of the water supply.

2. Water Consumption Data

The average daily water consumption for the year 2002 was 3.67 million gallons, with a peak demand of 5.141 million gallons on August 14, 2002. Average percentages of town water consumption over the past five years were as follows: Residential & Commercial 52%, U-Mass 41%, Amherst College 4%, and Hampshire College 2%.



3. Substances Found in Tap Water

In order to ensure that tap water is safe to drink, the U.S. EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline at 800-426-4791.

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, and in some cases, radioactive material. This water may also pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

Microbial Contaminants- such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic Contaminants- such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and Herbicides-may come from many sources such as agricultural, urban stormwater runoff, and residential uses.

Organic Chemical Contaminants- including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can, also, come from gas stations, urban stormwater runoff, and septic systems.

Radioactive Contaminants- which can be naturally occurring or be the result of oil and gas production and mining activities.

4. Vulnerability

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and some infants can be particularly at risk for infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline above.

5. Water Quality

The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently.

All water sources are analyzed for the following chemical substances: inorganics (metals and salts), nitrate, nitrite, lead, copper, disinfection byproducts, volatile organic substances (petroleum and solvents) and synthetic organic compounds (herbicides and pesticides). All of these substances that were

detected were below the federal limits. The table below indicates contaminants that were detected in your drinking water. None of these substances were above the levels designated by the Safe Drinking Water Act as being a health risk. The definitions across the page will help explain the water quality table:

Important Drinking Water Definitions:

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Action Level (AL): The concentration of a contaminant, which, if exceeded, triggers treatment, or other requirements that a water system must follow.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants (e.g. chlorine, chloramines, chlorine dioxide).

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

I. Regulated Substances	Date Tested	Unit	MCL	MCLG	Highest Detected Level	Range of Data	Major Sources	Violation
a) Inorganic Substances								
Fluoride	10/29/02	ppm	4	N/A	1.47	ND- 1.47	Added to prevent tooth decay	NO
Barium	10/29/02	ppm	2	2	0.133	ND- 0.133	Erosion of natural deposits	NO
Nitrate (measured as nitrogen)	10/29/02	ppm	10	10	1.18	ND- 1.18	Runoff from fertilizer use; Leaching from septic tanks, Sewage; Erosion of natural deposits	NO
b) Volatile Organic Substances								
Total Trihalomethanes	5/08/02	ppb	80	80	37.1	34.3- 37.1	Byproduct from chlorination	NO
II. Unregulated Substances	Date Tested	Unit	MCL	MCLG	Highest Detected Level	Range of Data	Major Sources	Violation
Sodium	10/29/02	ppm	None	None	29.3	7.36- 29.3	Road salt; Chlorine; Lye	NO
Sulfate	10/29/02	ppm	None	None	39.8	6.4- 39.8	Natural deposits; Landfills; Dumps;	NO
Nickel	10/29/02	ppm	None	None	0.003	ND- 0.003	Natural deposits; Sewage	NO

Units Description:

ND: Not detected

ppm: parts per million, or milligrams per liter (mg/l)

ppb: parts per billion, or micrograms per liter (µg/l)

6. Treatment Plant Efficiency

All raw water from surface water supplies is treated by coagulation of the insoluble contaminants and then filtered through a fine sand-like material. The effectiveness of this process is measured by the cloudiness of the water (turbidity) leaving the treatment plant. Turbidity occurs naturally as a result of soil runoff due to turbulence in the tributaries that supply the reservoir. The following turbidity data illustrates the daily average performance of the two water treatment plants that serve Amherst.

Treatment Plant	Raw Water Turbidity		Treated Water Turbidity	
	Annual Average	Maximum Reading	Annual Average	Maximum Reading
Centennial	0.63	4.1	0.11	0.66
Atkins	0.53	1.9	0.09	0.24

Note: All units measured in NTU= Nephelometric Turbidity Units

7. Lead & Copper

Elevated levels of lead and copper in drinking water usually indicate water that has corrosive qualities and may attack the household plumbing. Most homes use copper piping, and the solder used to hold the fixtures together might contain lead (lead in solder was discontinued in 1989). All water supplies in Amherst are treated for corrosion control by the addition of sodium hydroxide to reduce corrosion. In the last required sampling done in 2002, water samples from thirty-nine homes were analyzed, and the results are summarized in the table below. Only 1 sample was found to have lead levels over the AL.

Substance	MCLG	Highest Level	90% Value*	Action Level
Lead	0 ppb	6 ppb	4 ppb	15 ppb
Copper	1.3 ppm	0.12 ppm	.042 ppm	1.3 ppm

*The 90% Value is the value below which 90% of the data falls. If the 90% value is below the AL, no further action is necessary

8. Water Rate

According to a survey done by Tighe and Bond Consulting Engineers in the year 2002, the average water bill in Massachusetts was \$292 per household. The average cost of 2002 in Amherst was computed at \$208 per household. This is 29% lower than the average water bill cost in Massachusetts.

9. Water Conservation

Facts: Average household water use annually: 127,400 gallons

Average daily household water use: 350 gallons

Outdoor Lawn Watering: On average, 50 to 70 percent of home water is used outdoors for watering lawns and gardens. Water in the early morning; 30% of the water can be lost to evaporation if you water in the heat of the day. Water the lawn once or twice a week at a rate of one inch per week. Frequent watering will encourage roots to be shallow which is detrimental to a healthy lawn.

Indoor: Take a quick shower rather than a bath and save an average of 20 gallons of water. Install a water-efficient showerhead which will reduce your overall water bill cost. Only run your dishwasher when it is full to make the best use of water, energy and detergent. Turn off the water when brushing your teeth or shaving and save more than 5 gallons per day. When washing dishes by hand, fill one sink or basin with soapy water. Quickly rinse under a slow-moving stream from the faucet.

10. Current and Upcoming Projects

The Town of Amherst is working on several projects throughout the town to better serve the community. In 2002 the water tank on Bay Road was refurbished by cleaning and repainting the exterior. Current projects include completing a vulnerability assessment on the watershed area and water resources, researching water reuse program at the University of Massachusetts, Amherst and continuous mapping of water lines and connections using the high-tech Global Instrument Satellite system. An upcoming project starting the summer of 2003 involves cleaning and relining two vital water mains on North Pleasant Street between Governors Drive and Cows Lane.

General Water Chemistry (Sampled 2001-2002)			
All data expressed in mg/L			
Chemical	Limit	Well Water*	Surface Water**
Alkalinity	NS	45	7
Hardness	NS	44	8.95
Calcium	NS	13	2.55
Magnesium	NS	2.8	6.25
Aluminum	NS	<0.01	<0.01
Potassium	NS	1.2	<1.0
Iron	0.3	<0.1	<0.05
Manganese	0.05	<0.1	0.012
Sulfate	250	20.8	6.65
Chloride	NS	12	9
Silver	0.1	<0.005	<0.005
Zinc	5	<0.05	<0.05
Arsenic	0.05	<0.01	<0.01
Barium	2.0	0.1105	<0.011
Cadmium	0.005	<0.001	<0.001
Chromium	0.1	<0.005	<0.005
Fluoride	4.0	1.093	1.11
Mercury	0.002	<0.0002	<0.0002
Selenium	0.05	<0.002	<0.002
Sodium	NS	18.62	12.05
Antimony	0.006	<0.003	<0.003
Beryllium	0.004	<0.0003	<0.0003
Nickel	0.1	<0.0017	<0.001
Thallium	0.002	<0.001	<0.001
Cyanide	0.2	<0.004	<0.004
Nitrate	10	1.25	0.059
Nitrite	1.0	<0.01	<0.01
Radionuclides	All Below Limit or NR		
NR – Not Recordable		NS – No Standard	
* Average of Wells 1, 2, 3, 4 & 5			

**** Average of Atkins and Pelham Reservoirs**



Town of Amherst
Department of Public Works
586 South Pleasant Street
Amherst, MA 01002-2542

El informe contiene información importante sobre la calidad del agua en su comunidad. Tradúzcalo o hable con alguien que lo entienda bien.

这份报告中有些重要的信息，讲到关于您所在社区的水的品质。请您找人翻译一下，或者请能看得懂这份报告的朋友给您解释一下。

នេះជាសេចក្តីរាយការណ៍សំខាន់អំពីទឹក
ទទួលបាននៅទីក្រុងរបស់លោកអ្នក
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For more information, call Robert Pariseau, Director of Water Resources, at Amherst DPW at (413) 256-4050 (ext. 13)
Email: pariseau@town.amherst.ma.us
This report is also available on the web at WWW.TOWN.AMHERST.MA.US

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